## REMARKS

Applicants' attorney, the undersigned, thanks the Examiner for her time and courtesy during the telephone interview on February 10, 2005 in which the rejections of the pending claims under 35 USC § 112, first and second paragraphs, as set forth in the Office Action dated August 25, 2004, were discussed.

### I. STATUS OF THE CLAIMS.

Claims 184-190, 201, and 208-216 are presently pending. Claims 191-200, 202-203, and 205-206 have been canceled herein without prejudice to subsequent renewal, including in a divisional or continuation application. Claims 184-189, 204, and 208 have been amended as discussed below. All of the amendments herein are fully supported by the specification and none of these amendments constitutes new matter as discussed in further detail below.

New dependent claims 209-216 have been added. None of these new claims presents any new matter and each is supported by the specification as filed. New claim 209, which is dependent upon claim 188, further specifies that the polypeptide induces a 4-fold increase in the proliferation of T cells in the presence of the p35 polypeptide subunit of human interleukin-12 compared to the proliferation of T cells induced by a p40 polypeptide subunit of human interleukin-12 in the presence of the p35 polypeptide subunit of human interleukin-12. Support for this claim is provided throughout the specification, including at, but not limited to, e.g., p. 30, line 26 to p. 37, line 7. Applicants note that the nucleic acid and polypeptide sequences of clone C2-22 are designated as SEQ ID NO:1 and SEQ ID NO:8, respectively, in the specification. See, e.g., pages 142 and 144 of the specification.

New claim 210, which is dependent upon claim 188, specifies a composition comprising the polypeptide of claim 188 and a carrier. Support for this claim is provided throughout the specification, including at, but not limited to, original claims 58 and 59; p. 62, lines 19-24; p. 122, lines 13-26.

New claim 211, which is dependent upon claim 210, further specifies that the composition comprises a p35 polypeptide subunit of human interleukin-12. Support for this

claim is provided throughout the specification, including at, but not limited to, e.g., original claim 59; p. 13, line 30 to p. 14, line 9; p. 62, lines 19-24; p. 122, lines 13-26.

New claim 212, which is dependent upon claim 211, further recites that the carrier is a pharmaceutically acceptable carrier. Support for this claim is provided throughout the specification, including at, but not limited to, e.g., original claim 61; p. 62, lines 19-24; p. 122, lines 13-26.

New claim 213 specifies a composition comprising the polypeptide of claim 209 and a carrier. Support for this claim is provided throughout the specification, including at, but not limited to, original claims 58 and 59; p. 62, lines 19-24; p. 122, lines 13-26.

New claim 214, which is dependent on claim 215, further specifies that the composition comprises a p35 polypeptide subunit of human interleukin-12. Support for this claim is provided throughout the specification, including at, but not limited to, e.g., original claim 59; p. 13, line 30 to p. 14, line 9; p. 62, lines 19-24; p. 122, lines 13-26.

New claim 215 specifies a composition comprising the polypeptide of claim 208 and a carrier. Support for this claim is provided throughout the specification, including at, but not limited to, original claims 58 and 59; p. 62, lines 19-24; p. 122, lines 13-26.

New claim 216, which is dependent on claim 213, further specifies that the composition comprises a p35 polypeptide subunit of human interleukin-12. Support for this claim is provided throughout the specification, including at, but not limited to, e.g., original claim 59; p. 13, line 30 to p. 14, line 9; p. 62, lines 19-24; p. 122, lines 13-26.

## II. REJECTIONS UNDER 35 USC § 112, SECOND PARAGRAPH.

Claims 184-190 and 208 were rejected under 35 USC § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Examiner finds that claim 184, which recites a sequence that is at least 95% identical to the mature domain of SEQ ID NO:8, is vague and indefinite because "[i]t is unclear if the sequence has to be 95% identical to

the full-length of the mature domain or just a section of the mature domain." Claim 188 has been similarly rejected. Office Action, p. 4.

This rejection has been overcome by amending claim 184 to specify more particularly a sequence that is at least 95% identical to the full length of the mature polypeptide region of SEQ ID NO:8. Claim 188 has been similarly amended to specify a sequence that is at least 95% identical to the full length of the sequence of SEQ ID NO:8. Withdrawal of the rejection is respectfully requested.

## III. REJECTIONS UNDER 35 USC § 112, FIRST PARAGRAPH.

Claims 184-208 were rejected under 35 USC § 112, first paragraph, as allegedly failing to comply with the written description requirement. The Examiner finds that the claims contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Office Action, p. 2.

### A. New Matter

Specifically, claims 184, 188, 191-192, 204-206, and 208 were rejected because the Examiner is of the view that the phrase "human interleukin-12" in these claims does not have written support in the claims, specification or drawings as originally filed. Office Action, p. 2. This rejection is respectfully traversed.

Applicants respectfully submit that the phrase human interleukin-12 is fully supported by the specification as filed. See, e.g., p. 121, line 6 to p. 122, line 11. For example, at p. 121, lines 6-7, the specification states that that an antagonist of the cellular receptor of the p40/p35 heterodimer is a human interleukin-12 receptor. Based on the discussion and references cited on pages 121-122, one of ordinary skill in the art would clearly understand that p40 and p35 refer to the subunits of interleukin-12. In addition, the specification explains that T cell proliferation assays were conducted using modified p40polypeptides and a wild-type p35 polypeptide represented by SEQ ID NO:36. SEQ ID NO:36 represents the polypeptide sequence

of the p35 polypeptide subunit of human interleukin-12. See, e.g., p. 137, line 28 to p. 139, line 12. See also the specification at p. 10, lines 29-30, which indicates that SEQ ID NO:36 is the polypeptide sequence of a human p35 polypeptide. One of ordinary skill in the art, based upon a reading of the specification, would undoubtedly understand that Applicants have described the p35 polypeptide subunit of human interleukin-12. Therefore, this rejection is improper and should be withdrawn. Applicants note that the rejection has been nevertheless mooted with regard to claims 191 and 205-206, which have been canceled without prejudice to subsequent renewal.

Claims 184-187 and 192 were rejected because the Examiner is of the view that the phrase "mature domain" does not appear to have adequate written basis in the claims, specification, or drawings, as originally filed. Office Action, pp. 2-3. Although Applicants traverse this rejection, to expedite prosecution, this rejection has been overcome by amending claims 184-187 to specify a "mature polypeptide region," for which the Examiner agrees there is written description support. Applicants note that the rejection has been mooted with regard to claim 192, which has been canceled without prejudice to subsequent renewal. For these reasons, withdrawal of this rejection is respectfully requested.

Applicants note that amended claim 184 specifies a functional polypeptide that comprises a sequence that is at least 95% identical to the full length of the *mature polypeptide region* of SEQ ID NO:8. For consistency, claim 184 has also been amended to specify that the isolated or recombinant polypeptide induces T cell proliferation in the presence of a *mature polypeptide region* of a p35 polypeptide subunit of human interleukin-12. Claim 208, which is dependent upon claim 184, has been similarly amended for consistency to specify that the isolated or recombinant polypeptide induces a 4-fold increase in the proliferation of T cells in the presence of the *mature polypeptide region* of p35 polypeptide subunit of human interleukin-12 compared to the proliferation of T cells induced by a *mature polypeptide region* of a p40 polypeptide subunit of human interleukin-12 in the presence of the *mature polypeptide region* of the p35 polypeptide subunit of human interleukin-12. Claim 204, which is ultimately dependent on claim 184, has been similarly amended for consistency to specify the composition comprises

a *mature polypeptide region* of p35 polypeptide subunit of human interleukin-12. Support for these amendments is provided throughout the specification, including at, e.g., original claims 2, 58 and 59; p. 30, line 30 to p. 37, line 7; p. 13, line 30 to p. 14, line 9; p. 62, lines 19-24; p. 122, lines 13-26.

**B. Lack of Written Description**

Claims 184-208 were rejected as lacking sufficient written description in the specification. Office Action, p. 3. The basis for the Examiner's rejection appears to be that "a single mutation in a sequence can have significant impact on the sequence including the function" and "the specification appears to have data regarding the proliferation of T-cell activity for SEQ ID NO:8," but "it is still unknown if the modifications as stated in the claims above will result in polypeptides that still have the function of inducing T cells I [sic] the presence of a p35 polypeptide subunit of human interleukin-12 as stated in the new claims." *Id.* The Examiner takes the position that "[a]dditional assays would need to be performed for each of the modified sequences to determine if the asserted function occurs with these altered sequences." *Id.* Furthermore, the Examiner is of the view that "[a] lack of written description exists since it is unknown if the asserted function still applies to the variant sequences encompassed in the claims besides SEQ ID NO:8." *Id.* at pp. 3-4. This rejection is respectfully traversed in part and overcome as follows.

The Federal Circuit has discussed the written description requirement in reference to inventions involving a chemical genus. *See Univ. of California v. Eli Lilly and Co.*, 119 F.3d 1559, 1568, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997). In *Lilly*, the Court explained:

> In claims involving chemical materials, generic formulae usually indicate with specificity what the generic claims encompass. One skilled in the art can distinguish such a formula from others and can identify many of the species that the claims encompass. Accordingly, such a formula is normally an adequate description of the claimed genus . . . However, a generic statement such as "vertebrate insulin cDNA" or "mammalian insulin cDNA," without more, is not an adequate written description of the genus because it does not distinguish the claimed genus from others,

> except by function. It does not specifically define any of the genes that fall within its definition. *It does not define any structural features commonly possessed by members of the genus that distinguish them from others. One skilled in the art therefore cannot, as one can do with a fully described genus, visualize or recognize the identity of the members of the genus. A definition by function, as we have previously indicated, does not suffice to define the genus because it is only an indication of what the gene does, rather than what it is.*

*Id.*

The *Lilly* Court further explained that "[a] written description of an invention involving a chemical genus, like a description of a chemical species, 'requires a precise definition, such as by structure, formula, [or] chemical name,' of the claimed subject matter sufficient to distinguish it from other materials." *Id.* at 1567, 43 USPQ2d at 1405. The Court noted that "***[a] description of a genus of cDNAs may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus or of a recitation of structural features common to the members of the genus, which features constitute a substantial portion of the genus.***" *Id.* at 1568, 43 USPQ2d at 1406.

The Federal Circuit further clarified the written description requirement in the context of DNA-related inventions in *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 296 F.3d 1316, 63 USPQ2d 1609 (Fed. Cir. 2002). In *Enzo*, the Court explained that "the written description requirement can be met by 'showing that an invention is complete by disclosure of ***sufficiently detailed, relevant identifying characteristics . . . i.e., complete or partial structure, other physical and/or chemical properties, functional characteristics when coupled with a known or disclosed correlation between function and structure, or some combination of such characteristics.'***" *Id.* at 1324, 63 USPQ2d at 1613 (citing the USPTO's Written Description Guidelines, 66 Fed. Reg. 1099 *et seq.*, 1106) (emphasis added). Notably, the *Enzo* Court adopted the standard for determining compliance with written description set forth in the USPTO's Written Description Examination Guidelines, which apply to protein sequences and DNA sequences.

Recently, the Federal Circuit reiterated the standard articulated in *Enzo*, stating that the written description requirement may be satisfied if in the knowledge of the art the

disclosed function is sufficiently correlated to a particular structure. *Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1320, 66 USPQ2d 1429, 1438-39 (Fed. Cir. 2003), *rehearing denied* (Apr. 25, 2003); p*etition for cert. filed*, 72 U.S.L.W. 3106 (U.S. Jul. 24, 2003) (No. 03-124). *Moba* stressed again that "[t]he test for compliance with § 112 has always required sufficient information in the original disclosure to show that the inventor possessed the invention at the time of the original filing . . . '[t]he written description requirement does not require the applicant to describe exactly the subject matter claimed, [instead] the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed. . . .'" *Moba*, 352 F.3d at 1320-1321, 66 USPQ2d at 1439, quoting *Union Oil Co. of Cal. V. Atlantic Richfield Co.*, 208 F.3d 989,997, 54 USPQ2d 1227, 1232 (Fed. Cir. 2000).

Applicants respectfully submit that all of the rejected claims meet the written description requirement as elucidated by these Federal Circuit decisions as well as the USPTO's Written Description Guidelines. The Examiner's arguments that written description requirement is not met because "it is unknown if the modifications as stated in the above claims will result in polypeptides that still have the function of inducing proliferation of T cells I [sic] the presence of a p35 polypeptide subunit of human interleukin-12" and that "[a] lack of written description exists since it is unknown if the asserted function still applies to the variant sequences encompassed in the claims besides SEQ ID NO:8" are misplaced and improper. Predictability is not the legal standard or test for such a rejection. The issue is not whether Applicants provided experimental functional data for each sequence that falls within the scope of a claim, but whether Applicants have presented sufficiently detailed and relevant identifying characteristics, such as structure, function, chemical properties, etc., or a combination thereof, such that one of skill would understand, based upon reading the specification, that Applicants were in possession of a claimed polypeptides or compositions thereof at the time of filing. Here, the written description requirement is plainly met because Applicants describe specific chemical structures having a particular function (i.e., the ability to induce T cell proliferation in the presence of a p35 polypeptide of human interleukin-12), disclose a specific correlation between the claimed structures and the asserted function, and provide a specific description of the assays one can use

to test whether a particular structural sequence has the asserted function. Based on Applicants' disclosure, one skilled in the art would certainly have recognized that Applicants were in possession of the claimed polypeptides and compositions thereof.

Moreover, Applicants respectfully submit that the Examiner has failed to establish by a preponderance of the evidence why one of ordinary skill in the art, upon reading the specification, would not be able to recognize that applicants were in possession of the claimed molecules.

The rejection of claim 184 and claims dependent thereon (i.e., claims 185-187, 201, 204, and 207-208), and claim 188 and claims dependent thereon (i.e., claims 189-190) for alleged lack of written description is respectfully traversed as follows. These claims plainly fulfill the written description requirement as defined by Federal Circuit and the USPTO's Written Description Guidelines. Applicants respectfully point the Examiner to the USPTO's "Synopsis of Application of Written Description Guidelines," Example 14, which provides guidance on the written description requirement as it pertains to claims that include percent identity language. The specification provides the full length sequence and mature polypeptide region of SEQ ID NO:8 and specifically describes functional polypeptides comprising sequences that are at least 95% identical to the full length of SEQ ID NO:8 or its mature polypeptide region and have the ability to induce proliferation of T cells in the presence of a human p35 polypeptide. In addition, the specification describes specific polypeptide sequences sharing structural and functional features with SEQ ID NO:8, describes particular modifications that can be made to the sequence SEQ ID NO:8, and provides detailed guidance and examples as to how to screen all such polypeptides for the asserted T cell proliferation activity in the presence of a p35 polypeptide. See the specification, including at, but not limited to, for example, original claims 37-40; p. 2, line 17 to p 3, line 21; .p. 8, line 19 to p. 9, line 16; p. 65, line 10 to p. 67, line 10; p.104, line 15 to p. 106, line 13; p. 108, line 25 to p. 111, line 16; Figures 1A-1B; p. 135, line 20 to p. 141, line 18. Applicants' teachings of the structure of SEQ ID NO:8 and related polypeptide structures and means for making modifications and variations to SEQ ID NO:8, details of the functional characteristics of such polypeptides, and Applicants' disclosed

correlation between such structures and the asserted function, coupled with the detailed methods describing how to test for functional polypeptides using the assays provided in the specification, support the conclusion that Applicants sufficiently described and were in possession of the invention as claimed at the time of filing. Based on these teachings, one skilled in the art would undoubtedly have understood that Applicants were in possession of the claimed polypeptides and compositions thereof at the time of filing the application.

The rejection of claims 191-200, 202-203, and 205-206 for alleged lack sufficient written description is also respectfully traversed. These claims also satisfy the written description requirement outlined by the Federal Circuit and the USPTO's Written Description Guidelines. The specification describes common structural attributes and particular functional characteristics that specifically identify members of the genus defined by each such claim. In addition, the specification plainly discloses a specific correlation between the asserted function and claimed sequences and describes assays for identifying sequences having the asserted function. Moreover, the specification describes particular variants of the defined structural sequences that can be made by, for example, substitution, deletion, addition, or insertion of one or more amino acids in the specified sequence by one skilled in the art (such as, e.g., conservatively substituted variations,). See the specification, including at, but not limited to, e.g., p. 65, line 10 to p. 67, line 10; p. 104, line 15 to p. 106, line 13; p. 108, line 25 to p. 111, line 16. For at least these reasons, one of ordinary skill in the art would conclude that Applicants were in possession of the claimed polypeptides and compositions thereof at the time of filing.

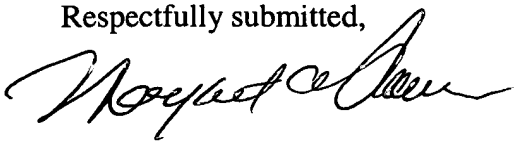
Although the Applicants strongly disagree with the Examiner's position that claims 191-200, 202-203, and 205-206 lack written description support in the specification as filed, in an effort to expedite prosecution of the application, Applicants have canceled these claims without prejudice to subsequent renewal, such as in continuation or divisional application. Thus, the rejection with respect to these claims has been mooted. Applicants specifically note that cancellation of claims 191-200, 202-203, and 205-206 is made without acquiescence to the Examiner's position regarding alleged lack of written description.

For at least these reasons, withdrawal of the rejection is respectfully requested.

## CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

Respectfully submitted,



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